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The problem of removal the hangover state is overcome. Review of the experience and new propositions

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Two factors mainly cause the hangover state: 1) the difference in the activity of two enzymes: alcohol dehydrogenase (ADH) and aldehyde dehydrogenase (ALDH); 2) toxic impurities in alcoholic beverages, conventionally called congeners. Congeners are either carbonyl compounds or are converted into carbonyl compounds under the action of ADH.

Hence we have stated Z1 Precept for desired pharmacological means capable to remove the hangover: **A candidate should interact with the carbonyl group of aldehydes**. In this respect good prospects have thioalcohols.

In 1999, independently and almost simultaneously, two Patent Applications on medicines, based on thioalcohols, for the treatment of hangover state were filed in USA and Russia: monothiols (USPat.No.6,077,838) and vicinal dithioglycols (USPat.No.7,820,196).

It turned out from comparative studies of chemical reactions that vicinal dithiols have several significant advantages over monothiol in binding acetaldehyde (s. Bondarenko G., Zenovich S. Study on interaction of acetaldehyde with thioalcohols by infrared spectroscopy. Biomed Khim. 2007,53(6):729-35. Russian. PMID: 18323155].

We carried out the comparative study with the participation of volunteers to explore the possibilities of the impact of thioglycols on the hangover condition. We tested also the so-called "folk remedies" (pickle solution, lemon tea, etc.), symptomatic agents (acetylsalicylic acid) and pharmacological means: Mesna, DMPS, DMSA.

It turned out that the “folk remedies” and symptomatic agents do not demonstrate a statistically significant effect on the improvement of the status of volunteers experiencing hangover.

Thioalcohols, on the contrary, proved its efficiency in the experiment. Mesna acts perceptibly, but however, DMSA and DMPS showed themselves more effectively. Within 1-2 hours after taking the drug hangover was removed. This was expressed both in subjective feelings of the test volunteers and in the biochemical and physiological indices.

Biography

Sergei M. Zenovich is a senior researcher at the Institute of Narcology at Institute of Narcology, Russian Federation. He graduated from Lomonosov Moscow State University. He obtained his Ph.D. (Biology) from the National Scientific Centre for Narcology, Russia. He has about 20 years of research experience of antialcoholic compounds and initiated discovery of a new properties of dithiols for treatment of disorders caused by alcohol intake: both hangover and (sub) chronic intoxication. He has obtained patents in the area of alleviating post-alcoholic state and preventing alcohol dependence formation.

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